REMARKS/ARGUMENTS

The present Amendment is responsive to the final Office Action mailed February 25, 2008 in the above-identified application.

Claims 3 and 4 are canceled without prejudice or disclaimer and new claims 15-17 are added. Therefore, claims 1-2, 5-8 and 10-17 are the claims currently pending in the present application.

Claims 1, 2, 5-8 and 10-13 are amended to clarify features recited thereby.

Applicant's Statement of Substance of Interview

Applicant thanks Examiners Nahid Amiri and Daniel Stodola for the opportunity of a telephone interview conducted on July 3, 2008. During the interview, applicant's representative, George Brieger, explained aspects of applicant's invention as claimed in claim 1 with reference to Figs. 1 and 2 of the Drawings. Further, applicant's representative pointed out points of distinction over the McManigal reference, including that McManigal does not disclose or suggest that the first end surface of the flange is concave in the radial direction over an area that is subjected to deformation in the assembled state. Various possible amendments to the claims were discussed. No agreement was reached. The foregoing will serve as applicant's Statement of the Substance of the Interview.

Objection to Claim 11

Claim 11 is objected to on the ground that the term "the flanged member" should be changed to "one of the flanged members." Claim 11 is amended.

Rejection of Claims 11-13 under 35 U.S.C. § 112, Second Paragraph

Claims 11-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite on the ground that the term "said first end surface" recited in claim 11 allegedly lacks sufficient antecedent basis. Claim 11 is amended.

Rejection of Claims 1-5 and 10-14 under 35 U.S.C. § 103

Claims 1-5 and 10-14 are rejected under 35 U.S.C. § 103 as being obvious from McManigal, U.S. Patent No. 5,040,714. Reconsideration of this rejection is respectfully requested.

Claim 1 requires a first flanged member including a first flanged end with a first end surface comprising a first load transferring surface through which forces are transferred when assembled together with the corresponding second flanged member, at least a portion of the first load transferring surface in an unstressed condition being concave in a radial direction, and a boring passing through the first end surface at a radial distance from a central axis of the first flanged member greater than the radial distance from the central axis of the first flanged member to the innermost abutment point, and less than the radial distance from the central axis to the outermost abutment point.

Further, claim 11 requires a joint comprising a first flanged member and a second flanged member each comprising at least one flanged end having an end surface comprising a load transferring surface through which forces are transferred when connecting together said first and second flanged members in an assembled state, wherein, for the first flanged member, at least a portion of the load transferring surface in an unstressed condition is concave in a radial direction, and a boring passing through the end surface of the first flanged member at a radial distance from a central axis of the first flanged member greater than the radial distance from the central axis of the first flanged member to the innermost abutment point, and less than the radial distance from the central axis to the outermost abutment point.

McManigal discloses that the flanges include annular protrusions 14a and 15a (each half toroidal) that present convex surfaces engageable with opposite flat sides of a metallic annular seal or compression washer 16" (McManigal, column 2, lines 44-48, underline added).

McManigal discloses that the protrusion profile includes concavity at 15b, convexity at 15c and intersects the bore 11a at the rim 15d, which is spaced axially a small distance "d" from the plane 15e of the convex nose of the protrusion (McManigal, column 4, lines 32-36; Fig. 9). McManigal explains that these dimensional relationships assure that the bore diameter of the deformed seal will be brought into approximately flush relation with the bores 10a and 11a, and that the distance "d" is substantially less than the overall axial dimension "t" of the protrusion, "d" being typically less than 1/5 "t."

Accordingly, when the protrusions 14a and 15a are pressed into the seal, seal material from the convex nose of the protrusion to the seal inner diameter 16d is pressed inwards, so that

the compressed seal inner diameter becomes flush with the bores 10a and 11a, and the gap with axial length "d" at 15d is filled up. As explained at McManigal, column 4, lines 4-13:

> in accordance with the invention herein, the annular protrusions 14a and 15a are shaped so as to compressively deform the annular seal 16, as better seen in FIG. 2a. Note that the protrusions 14a and 15a penetrate opposite sides of the annular seal 16 to cause axial expansion or thickening at annular seal region 16a, axial thinning or reduction at annular seal region 16b, and some lesser thinning or reduction at annular seal region 16c. Thus, the seal becomes radially locked in position during make-up.

Thus, if the protrusions are pressed in more than is required to fill up the gap at 15d (as explained above), then the seal inner diameter surface will bulge inwards towards the bores so that the seal inner diameter is no longer "substantially flush with the bore diameters 10a and 11a" (quote from McManigal, column 4, line 17). If this were to happen, the seal material would restrict the flow of fluid though the bore. It is for this reason that McManigal emphasizes keeping the material flush with the bores by keeping the axial compression of the seal within certain limits. Thus, McManigal teaches that the axial distance that the protrusions need to pressed into the seal may be somewhat greater than "d" but not a great deal more as this could cause problems as described above.

When the protrusions 14a and 15a are pressed into the seal, seal material from the convex nose of the protrusion and outward thereof is pressed outwards, causing the seal to bulge in seal region 16a. Thus, McManigal aims to create a thickened region 16a which will lock the seal in position, and thus teaches that it is important for the seal material to flow out through the side of the protrusion as the convex protrusion is pressed into the seal. It would be undesirable if the seal material reaches the protrusion concave region 15b, since this would increase the restrictions for the material to bulge axially along the protrusions, which in turn would make it more difficult to control tensioning of the threaded parts 24 and 47 required to keep the seal inner diameter surface "substantially flush" with the bore diameters 10a and 11a, as explained above.

Therefore, McManigal teaches away from a first load transferring surface in an unstressed condition being concave in a radial direction, as required by claims 1 and 11 because, if the annular protrusions were pressed into the annular seal to the extent that the seal material would enter the concave zone and fill it to the point that it bears weight when engaged with the other

side, the seal material would also enter the borings and would not be "substantially flush" with the bore diameters 10a and 11a. Accordingly, the recitations of claims 1 and 11 are not disclosed by McManigal and, in fact, McManigal teaches away from the apparatus as claimed in claims 1 and 11.

Further, McManigal does not disclose or suggest a boring passing through the end surface at a radial distance from the central axis less than the radial distance from the central axis to the outermost abutment point. Accordingly, McManigal does not disclose or suggest the recitations of claims 1 and 11 for at least this additional reason.

Claims 2, 5, 10 and 14 depend from claim 1, and claims 12 and 13 depend from claim 11. Accordingly, claims 2, 5, 10 and 12-14 are patentably distinguishable over the cited art for at least the same reasons as their respective base claims. Claims 3 and 4 are canceled with prejudice or disclaimer, and therefore, this rejection is moot as to these claims.

Rejection of Claims 1-7 and 11-14 under 35 U.S.C. §102

Claims 1-7 and 11-14 are rejected under 35 U.S.C. §102(b) as being anticipated by Schindler et al., U.S. Patent No. 2,739,828. Reconsideration of this rejection is respectfully requested.

As discussed in the previous Amendment, Schindler discloses a pipe connector with a flexible material joint, and discloses that the sealing or load-transferring surfaces are planar (Schindler, Figure 5). That is, the concave portions are not engaged with the flexible sleeve 37.

Schindler does not disclose or suggest a flanged member with an end surface forming a load transferring surface through which forces are transferred when assembled, at least a portion of the load transferring surface in an unstressed condition being concave in a radial direction, such that at least a portion of the end surface is curved and defined by a concave curve function, as required by claims 1 and 11. Accordingly, Schindler does not disclose or suggest the recitations of claims 1 and 11.

Claims 2, 5-7 and 14 depend from claim 1, and claims 12 and 13 depend from claim 11. Therefore, claims 2, 5-7 and 12-14 are patentably distinguishable over the cited art for at least the same reasons as their respective base claims. Claims 3 and 4 are canceled with prejudice or disclaimer, and therefore, this rejection is moot as to these claims.

Rejection of Claim 8 under 35 U.S.C. §103

Claim 8 is rejected under 35 U.S.C. §103 as being obvious from McManigal. Reconsideration of this rejection is respectfully requested.

Claim 8 depends from claim 1 and is therefore patentably distinguishable over McManigal for at least the same reasons as claim 1.

New Claims

New claims 15-17 are added so as more fully to claim patentable aspects of applicant's invention. New claims 15-17 are fully supported by applicants' disclosure, see, for example, Figs. 1 and 2.

New claims 15 and 17 depend from claim 1, and new claim 16 depends from claim 11. Therefore, new claims 15-17 are patentably distinguishable over the cited art for at least the same reasons as their respective base claims.

In view of the foregoing remarks, withdrawal of the objection and the rejections and allowance of the application are respectfully requested.

Respectfully submitted,

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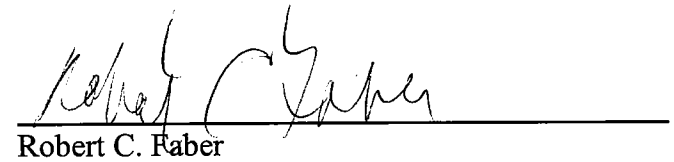

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